

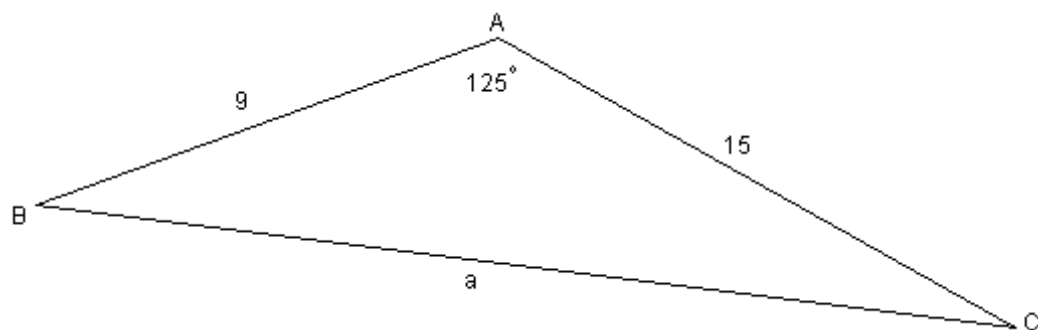
### 3.9 The Law of Cosines

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

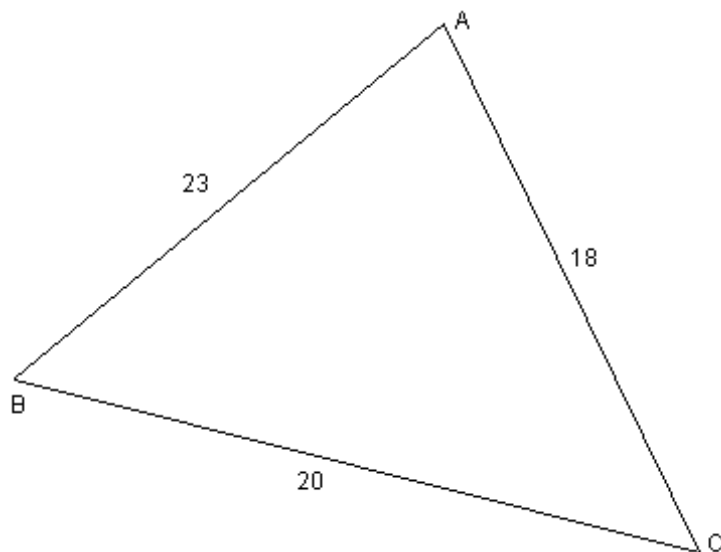
Solve the triangle. Show work!

1)



1) \_\_\_\_\_

2)



2) \_\_\_\_\_

3)  $A = 55^\circ$ ,  $b = 12$ ,  $c = 7$

3) \_\_\_\_\_

4)  $a = 12$ ,  $b = 21$ ,  $C = 95^\circ$

4) \_\_\_\_\_

5)  $a = 1, b = 5, c = 4$

5) \_\_\_\_\_

6)  $a = 3.2, b = 7.6, c = 6.4$

6) \_\_\_\_\_

7)  $A = 42^\circ, a = 7, b = 10$

7) \_\_\_\_\_

8)  $A = 63^\circ, a = 8.6, b = 11.1$

8) \_\_\_\_\_

Find the area of the triangle. Show work!

9)  $A = 47^\circ$   
 $b = 32$  ft  
 $c = 19$  ft

9) \_\_\_\_\_

10)  $B = 101^\circ$   
 $a = 10$  cm  
 $c = 22$  cm

10) \_\_\_\_\_

Decide whether a triangle can be formed with the given side lengths. If so, use Heron's formula to find the area of the triangle. Show work!

11)  $a = 4$   
 $b = 5$   
 $c = 8$

11) \_\_\_\_\_

12)  $a = 3$   
 $b = 5$   
 $c = 8$

12) \_\_\_\_\_

13)  $a = 19.3$   
 $b = 22.5$   
 $c = 31$

13) \_\_\_\_\_

- 14)  $a = 33.4$   
 $b = 28.5$   
 $c = 22.3$

14) \_\_\_\_\_

Solve the problem.

- 15) Juan wants to find the distance between two points A and B on opposite sides of a building. He locates a point C that is 110 ft. from A and 160 ft. from B. If the angle at C is  $54^\circ$ , find the distance AB.

15) \_\_\_\_\_

- 16) Designing a Baseball Field

16) \_\_\_\_\_

a) Find the distance from the center of the front edge of the pitcher's mound to the far corner of the second base. How does the distance compare with the distance from the pitcher's mound to first base? (See figure)

b) Find angle B in triangle ABC.

- 17) Tony must find the distance from A to B on opposite sides of a lake. He locates a point C that is 860 ft. from A and 175 ft. from B. He measures the angle at C to be  $78^\circ$ . Find the distance AB.

17) \_\_\_\_\_